STUDIES IN THE EUPATORIEAE (ASTERACEAE). XXXVII.

THE GENUS *HEBECLINIUM*

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The Eupatorian species with hair or chaff on the receptacles have often been segregated into a separate genus or section, *Hebeclinium*. Like many other segregates previously recognized in the Eupatorieae, this concept of *Hebeclinium* is somewhat artificial. Some species such as *Polyanthina nemorosa* (1970) and *Urolepis hecatantha* (1971) have no close relationship. Also, hairs are found occasionally on receptacles of many species in such genera as *Fleischmannia* and *Critonia*. Still, most species of Eupatorieae with prominent hairs on the receptacles belong to a related group of three genera, *Decachaeta* (1969), *Hebeclinium*, and *Neobartlettia* (1971).

This related group of three genera may be considered Critonioid in the broad sense having smooth surfaced corolla lobes and simple style bases. The three genera are rather distinct, however, in having usually slender anther collars with mostly inornate cells, and usually having many distinct hairs on the outer surfaces of the corolla lobes. *Decachaeta* is distinct by the short anther appendages with recurved margins, and all but one species of *Decachaeta* have alternate leaves. *Decachaeta* is entirely Mexican and Central American in distribution. *Neobartlettia* is most obviously distinct from *Hebeclinium* in its less convex, conical or even flat receptacles. *Neobartlettia* occurs primarily in Mexico and Central America with some South American species.

In seeking a more concise understanding of *Hebeclinium* and its relatives, we have taken vertical sections through the receptacles of a number of species. In almost all the species of *Hebeclinium* the very highly convex receptacle is composed internally almost entirely of sclereids. The massive outer layer is many cells thick and breaks off rather easily. Only one species, *H. guevarae*, has been seen with considerable parenchyma in the receptacle and the outer layer of sclereids only one or two cells thick. The receptacles of both *Decachaeta* and *Neobartlettia* characteristically have a large core of parenchyma.

Hebeclinium A.P.Decandolle, Prodr. 5: 136. 1836.

Plants erect, sparsely branched, herbs or subshrubs. Leaves always opposite, distinctly petioled, blades broadly ovate to deltoid, often serrate. Inflorescence a corymbose panicle. In-

volucre of 25-40 lanceolate phyllaries; in 3-5 series; receptacle hemispherical, barely to densely hairy; 20-80 flowers per head; corollas narrowly tubular, 5-lobed, outer surface of corolla glabrous below, lobes usually longer than wide, usually with prominent multicellular uniseriate hairs and a few glands; inner surface of four species with numerous multiseptate hairs; stomates absent; anther collar often slender composed of rather thin walled inornate cells, many quadrate cells in lower part. Anther appendage rather large with large cells; style base without enlarged node, glabrous. Stylar appendage very narrow throughout, only slightly mamillose. Achenes prismatic, 4-5 ribbed, setae sometimes present, carpopodia scarcely distinct, only a few rows of short cells at edge, area of longer upper cells merging with sides of achene and extending up ribs, pappus of ca 30-40 scabrous setae, apical cells pointed. Chromosome number determined as X = 10 (Powell and King, 1969).

Type species: Eupatorium macrophyllum L.

Our studies indicate that the genus contains the following eleven species.

Hebeclinium bullatissimum (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium bullatissimum B.L.Robinson, Contr. Gray Herb. n.s. 73:6. 1924. Ecuador.

Hebeclinium cuatrecasasii (R.M.King & H.Robinson) R.M.King & H. Robinson, comb. nov. Eupatorium cuatrecasasii R.M.King & H.Robinson, Sida 3: 324. 1969. Colombia.

Hebeclinium erioclinium (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium erioclinium B.L.Robinson, Proc. Amer. Acad. 54: 243. 1918. Colombia.

Hebeclinium guapulense (Klatt) R.M.King & H.Robinson, comb. nov. Eupatorium guapulense Klatt, Leopoldina 20: 90. 1884. Colombia, Ecuador.

Hebeclinium guevarae (R.M.King & H.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium guevarae R.M.King & H.Robinson, Sida 3: 322. 1969. Colombia.

Hebeclinium hygrohylaeum(B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium hygrohylaeum B.L.Robinson, Contr. Gray Herb. n.s. 17: 19. 1926. Costa Rica.

Hebeclinium jajoense (Aristeguieta) R.M.King & H.Robinson, comb. nov. Eupatorium jajoense Aristeguieta, Fl. Venez. 10: 200. 1964. Venezeula.

Hebeclinium macrophyllum (L.) A.P.Decandolle, Prodr. 5: 136. 1836. Eupatorium macrophyllum L. Sp. Pl. ed. 2, 1175. 1763. Mexico, Central America, West Indies, South America (Colombia-Argentina).

Hebeclinium phoenicticum (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium phoenicticum B.L.Robinson, Contr. Gray Herb. n.s. 60: 26. 1919. Colombia.

Hebeclinium sericeum (H.B.K.) R.M.King & H.Robinson, comb. nov. Eupatorium sericeum H.B.K., Nov. Gen. et Sp. 4: 110. ed. fol. 1818. Colombia.

Hebeclinium torondoyense(Badillo) R.M.King & H.Robinson, comb. nov. Eupatorium torondoyense Badillo, Bol. Soc. Venez. Cienc. Nat. 9: 189. 1944. Colombia, Venezeula.

Species excluded

H. atrorubens Lem. = Neobartlettia sordida

H. brevipetiolata Schultz-Bip. ex Klatt = Neobartlettia brevipetiolata

H. ehrenbergii Schultz-Bip. ex Hemsl. = Neobartlettia ehrenbergii

H. hecatanthum A.P.Decandolle = Urolepis hecatantha

H. ianthinium Hook. = Neobartlettia sordida

H. liebmanniae Schultz-Bip. ex Hemsl. = Decachaeta perornata

H. macrocephalum Benth. = Neobartlettia ehrenbergii

H. megalophyllum Lem. = Neobartlettia ?

H. panamense Carr. = Neobartlettia sordida

H. sordidum Schultz-Bip. ex Koster = Neobartlettia sordida

H. tepicanum Hook. & Arn. = Critonia hebebotrya

H. tetragonum Benth. = Fleischmannia microstemon

H. urolepis A.P.Decandolle = Urolepis hecatantha

H. vitifolium Schultz-Bip. ex Klatt = Eupatoriastrum triangulare

Note on the genus Decachaeta. The following species is to be added to those in the recent monograph of the genus (King & Robinson, 1969). The species is similar to D. thieleana but is distinct by its opposite leaves and less numerous glands.

Decachaeta perornata (Klatt) R.M.King & H.Robinson, comb. nov. Eupatorium perornatum Klatt, Leopoldina 20: 90. 1884. Mexico.

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